



"Geology at a Glance" Floating Classroom

Grades 3, 4, and 5



Theme	By making simple observations, students can begin to identify some common rocks of Lake Mead National Recreation Area and identify major landforms that create the landscape around them.
Objectives	Students will name the four layers that comprise the structure of Earth. Students will locate, describe, and record differences of at least three common natural features around the Boulder Basin. Students will sort, describe, and record differences of a variety of rocks.
Vocabulary	<p><u>geology</u> - the science that examines Earth, its form and composition, and the changes that it undergoes</p> <p><u>crust</u> - the very thin outermost layer of Earth. It is approximately 4 miles thick under oceans and approximately 40 miles thick under mountain ranges.</p> <p><u>mantle</u> - the layer of rocks approximately 1800 miles thick between the crust and outer core. Parts of the mantle are semi-molten and flow in slow currents.</p> <p><u>outer core</u> - the layer of molten rocks approximately 1400 miles thick between the mantle and inner core</p> <p><u>inner core</u> - a solid ball of mainly iron and nickel with a diameter of 1500 miles</p> <p><u>magma</u> - molten rock found beneath Earth's crust</p> <p><u>igneous rock</u> - rock formed by the cooling of molten magma</p> <p><u>sedimentary rock</u> - rock formed of any sediment deposited by wind, water, or precipitation that has been cemented or compacted</p> <p><u>metamorphic rock</u> - rock changed from pre-existing rock by great temperature, pressures, stress, and/or chemical changes, usually at depth in the crust</p>
Background Information	Though geology is a complicated science of Earth's continual processes, it can be studied in a way that helps students better understand. Variations in heat, pressure, and materials create a series of layers in Earth. They are the crust, mantle, outer core, and inner core. Comparing the structure to an apple can be helpful for students. The crust is very thin like the skin of an apple and the inner core is solid like an apple core. Earth's crust covers the entire planet and is fragmented into many mobile semi-rigid plates. The plates move around by powerful convection currents within the underlying mantle.

The three basic rock classes are igneous, sedimentary, and metamorphic. All three types can be studied at Lake Mead National Recreation Area. The most recognized example of an igneous rock is volcanic basalt. The air bubbles in the rock were formed when gas was trapped in the rapidly cooling lava. A common example of a sedimentary rock is sandstone. Particles of sand are cemented together over time and under increased pressure. One example of metamorphic rock is gneiss (pronounced “nice”). Under great pressure and temperature, mineral crystals break down and realign. Gneiss has banded layers.

Before The Field Trip Activity

The students can better understand Earth by building its layers from the inside out. Choose one student to be the inner core. Have that student pretend to flex her/his muscles to demonstrate strength. Next, have a small group be the outer core. Have them form a circle around the inner core. They should face in, toward the inner core, and walk counterclockwise around the inner core while holding their arms out to the sides and waving them up and down. This represents how the outer core is liquid and moving. Now choose another group to be the mantle. Have them join hands to form a circle around the outer core and chant “hot rocks, hot rocks, hot rocks” as they’re moving. Finally, choose the remaining students to be the crust. Have them face outward and *slowly* walk around the rest of Earth, chanting “moving plates, moving plates”.

After The Field Trip Activity

Have students bring in one rock from their own yards or take them outside to choose one rock each from the school yard. The rock should be a small one that fits in their closed palm. Have each student draw a picture of their rock and allow time for them to really look at their rock up close. Have them write a few words to describe their rock and to give it a name. Form small groups of about five students each and provide one bag to each group. Have students put their rocks in the group’s bag. Then have them close their eyes and allow each student the opportunity to try to feel inside the bag for their rock without looking inside. Can they locate their rock? This activity allows for students to better understand certain characteristics of rocks that geologists look for when studying rocks.

References

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